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(54) Title: CROSS-LINKED NITRIC OXIDE-RELEASING POLYAMINE COATED SUBSTRATES, COMPOSITIONS COMPRISING SAME AND METHOD OF MAKING SAME

(57) Abstract: The invention provides a method for preparing a nitric oxide-releasing medical device. The method includes contacting an amine-functionalized silane residue with a substrate, e.g., a metallic substrate, contacting the amine-functionalized silane residue with a cross-linking agent, contacting at least one nucleophilic residue with the crosslinked amine-functionalized silane residue, and contacting the nucleophilic residue with nitric oxide gas. The invention also provides a method of contacting the cross-linked amine-functionalized silane residue with at least one nitric oxide-releasing functional group. Furthermore, the invention provides a medical device for delivering nitric oxide in therapeutic a concentration, wherein the device comprises a substrate having nitric oxide bound thereto through diazeniumdiolated nucleophiles bonded to silane intermediates. The silane intermediates are bonded to the substrate and are amine-functionalized and crosslinked.